providing a mold having at least one component with at least one dimension less than 100 μm;

filling the mold with a ceramic precursor; and

heating the ceramic precursor under a moisture-free atmosphere to produce a ceramic structure.

2. (Amended) The method of claim 1, wherein the ceramic precursor comprises at least two different elements.

3. (Amended) The method of claim 2, wherein the at least two different elements are selected from a group consisting of carbon, nitrogen, boron, silicon, phosphorus, aluminum and hydrogen.

4. (Amended) The method of claim 1, wherein the ceramic precursor comprises at least three different elements.

6. (Amended) The method of claim 1, wherein each element of the ceramic structure is derived from the ceramic precursor.

7. (Amended) The method of claim 1, wherein the step of heating is performed under an inert atmosphere.

15. (Amended) The method of claim 13, further comprising treating the substrate surface to render the substrate inert with respect to reaction with the ceramic precursor and any subsequent products resulting from the ceramic precursor.

Please add the following new claims:

52. (New) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

providing a ceramic precursor having sufficient viscosity to completely fill the mold, wherein the viscosity of the ceramic precursor is adjusted to have a value of less than about 500 cm^2/s; and

thereafter, filling the mold with the ceramic precursor.

53. (New) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

reacting the mold with an agent selected from the group consisting of an alkylating, silylating, fluoroalkylating, or alkylsilylating agent, such that the mold is inert with respect to reaction with a ceramic precursor and any subsequent products resulting from the ceramic precursor; and

thereafter, filling the mold with the ceramic precursor.

54. (New) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

positioning a surface of the mold against a surface of a substrate to create a cavity which a ceramic precursor fills; and

treating the substrate surface to render the substrate inert with respect to reaction with the ceramic precursor and any subsequent products resulting from the ceramic precursor.

55. (New) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm; and

allowing a ceramic precursor to enter a volume of lower pressure in the mold.